



DEPARTMENT OF THE AIR FORCE  
59TH MEDICAL WING (AETC)  
JOINT BASE SAN ANTONIO - LACKLAND TEXAS



15 MAR 2017

MEMORANDUM FOR ST

ATTN: LT COL JACQUELINE KILLIAN

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Pilot Study of A Novel Biobehavioral Intervention's Effect on Physiologic State, Perceived Stress and Affect: An Investigation of the Health Benefits of Laughter Yoga Participation** presented at/published to **2017 MHSRS Conference, Date/Location TBD (Poster & Presentation)** in accordance with MDWI 41-108, has been approved and assigned local file #**17134**.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are a 59 MDW staff member, we can forward your request for funds to the designated Wing POC at the Chief Scientist's Office, Ms. Alice Houy, office phone: 210-292-8029; email address: [alice.houy.civ@mail.mil](mailto:alice.houy.civ@mail.mil).
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

*Linda Steel-Goodwin*

LINDA STEEL-GOODWIN, Col, USAF, BSC  
Director, Clinical Investigations & Research Support



## PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS

### INSTRUCTIONS

#### USE ONLY THE MOST CURRENT 59 MDW FORM 3039 LOCATED ON AF E-PUBLISHING

1. The author must complete page two of this form:
  - a. In Section 2, add the funding source for your study [ e.g., 59 MDW CRD Graduate Health Sciences Education (GHSE) (SG5 O&M); SG5 R&D; Tri-Service Nursing Research Program (TSNRP); Defense Medical Research & Development Program (DMRDP); NIH; Congressionally Directed Medical Research Program (CDMRP) ; Grants; etc.]
  - b. In Section 2, there may be funding available for journal costs, if your department is not paying for figures, tables or photographs for your publication. Please state "YES" or "NO" in Section 2 of the form, if you need publication funding support.
2. Print your name, rank/grade, sign and date the form in the author's signature block or use an electronic signature.
3. Attach a copy of the 59 MDW IRB or IACUC approval letter for the research related study. If this is a technical publication/presentation, state the type (e.g. case report, QA/QI study, program evaluation study, informational report/briefing, etc.) in the "Protocol Title" box.
4. Attach a copy of your abstract, paper, poster and other supporting documentation.
5. Save and forward, via email, the processing form and all supporting documentation to your unit commander, program director or immediate supervisor for review/approval.
6. On page 2, have either your unit commander, program director or immediate supervisor:
  - a. Print their name, rank/grade, title; sign and date the form in the approving authority's signature block or use an electronic signature.
7. Submit your completed form and all supporting documentation to the CRD for processing (59crdpubspres@us.af.mil). **This should be accomplished no later than 30 days before final clearance is required to publish/present your materials.** If you have any questions or concerns, please contact the 59 CRD/Publications and Presentations Section at 292-7141 for assistance.
8. The 59 CRD/Publications and Presentations Section will route the request form to clinical investigations, 502 ISG/JAC (Ethics Review) and Public Affairs (59 MDW/PA) for review and then forward you a final letter of approval or disapproval.
9. Once your manuscript, poster or presentation has been approved for a one-time public release, you may proceed with your publication or presentation submission activities, as stated on this form. **Note:** For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.
10. If your manuscript is accepted for scientific publication, please contact the 59 CRD/Publications and Presentations Section at 292-7141. This information is reported to the 59 MDW/CC. All medical research or technical information publications/presentations must be reported to the Defense Technical Information Center (DITC). See 59 MDWI 41-108, *Presentation and Publication of Medical and Technical Papers*, for additional information.
11. The Joint Ethics Regulation (JER) DoD 5500.07-R, *Standards of Conduct*, provides standards of ethical conduct for all DoD personnel and their interactions with other non-DoD entities, organizations, societies, conferences, etc. Part of the Form 3039 review and approval process includes a legal ethics review to address any potential conflicts related to DoD personnel participating in non-DoD sponsored conferences, professional meetings, publication/presentation disclosures to domestic and foreign audiences, DoD personnel accepting non-DoD contributions, awards, honoraria, gifts, etc. The specific circumstances for your presentation will determine whether a legal review is necessary. **If you (as the author) or your supervisor check "NO" in block 17 of the Form 3039, your research or technical documents will not be forwarded to the 502 ISG/JAC legal office for an ethics review.** To assist you in making this decision about whether to request a legal review, the following examples are provided as a guideline:

For presentations before professional societies and like organizations, the 59 MDW Public Affairs Office (PAO) will provide the needed review to ensure proper disclaimers are included and the subject matter of the presentation does not create any cause for DoD concern.

If the sponsor of a conference or meeting is a DoD entity, an ethics review of your presentation is not required, since the DoD entity is responsible to obtain all approvals for the event.

If the sponsor of a conference or meeting is a non-DoD commercial entity or an entity seeking to do business with the government, then your presentation should have an ethics review.

If your travel is being paid for (in whole or in part) by a non-Federal entity (someone other than the government), a legal ethics review is needed. These requests for legal review should come through the 59 MDW Gifts and Grants Office to 502 ISG/JAC.

If you are receiving an honorarium or payment for speaking, a legal ethics review is required.

If you (as the author) or your supervisor check "YES" in block 17 of the Form 3039, your research or technical documents will be forwarded simultaneously to the 502 ISG/JAC legal office and PAO for review to help reduce turn-around time. If you have any questions regarding legal reviews, please contact the legal office at (210) 671-5795/3365, DSN 473.

**NOTE:** All abstracts, papers, posters, etc., should contain the following disclaimer statement:

***"The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components"***

**NOTE:** All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving humans:

***"The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02\_AFI 40-402."***

**NOTE:** All abstracts, papers, posters, etc., should contain the following disclaimer statement for research involving animals, as required by AFMAN 40-401\_IP :

***"The experiments reported herein were conducted according to the principles set forth in the National Institute of Health Publication No. 80-23, Guide for the Care and Use of Laboratory Animals and the Animal Welfare Act of 1966, as amended."***



<b>PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS</b>			
1. TO: CLINICAL RESEARCH	2. FROM: (Author's Name, Rank, Grade, Office Symbol) Killian, Jacqueline, Lt Col, O-5, 59 MDW/ST	3. GME/GHSE STUDENT: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	4. PROTOCOL NUMBER: TO-61-3105
5. PROTOCOL TITLE: ( <b>NOTE:</b> For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.) Pilot Investigation of a Bio-behavioral Intervention's Impact on Physiologic State, Perceived Stress & Affect			
6. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED: Pilot Study of a Novel Biobehavioral Intervention's Effect on Physiologic State, Perceived Stress and Affect: An Investigation of the Health B			
7. FUNDING RECEIVED FOR THIS STUDY? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO FUNDING SOURCE: USUHS & Jonas Center for Nursing & Veterans Healthcare			
8. DO YOU NEED FUNDING SUPPORT FOR PUBLICATION PURPOSES: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
9. IS THIS MATERIAL CLASSIFIED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
10. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <b>NOTE:</b> If the answer is YES then attach a copy of the Agreement to the Publications/Presentations Request Form.			
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<input checked="" type="checkbox"/> 11e. OTHER (Describe: name of meeting, city, state, and date of meeting.) Poster and Podium presentation at the upcoming 2017 MHSRS conference, date and location TBD (not yet made available)			
12. HAVE YOUR ATTACHED RESEARCH/TECHNICAL MATERIALS BEEN PREVIOUSLY APPROVED TO BE PUBLISHED/PRESENTED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO ASSIGNED FILE # 16225 DATE 3 June 2016			
13. EXPECTED DATE WHEN YOU WILL NEED THE CRD TO SUBMIT YOUR CLEARED PRESENTATION/PUBLICATION TO DTIC <b>NOTE:</b> All publications/presentations are required to be placed in the Defense Technical Information Center (DTIC).			
DATE 30 Sept 2017			
14. 59 MDW PRIMARY POINT OF CONTACT (Last Name, First Name, M.I., email) Killian, Jacqueline M jacqueline.killian@us.af.mil			15. DUTY PHONE/PAGER NUMBER 757-810-0686
16. AUTHORSHIP AND CO-AUTHOR(S) List in the order they will appear in the manuscript.			
LAST NAME, FIRST NAME AND M.I.	GRADE/RANK	SQUADRON/GROUP/OFFICE SYMBOL	INSTITUTION (If not 59 MDW)
a. Primary/Corresponding Author Jacqueline Killian	O-5/Lt Col	59 MDW/ST	
b. Dominic Nathan	Civ		NICOE
c.			
d.			
e.			
17. IS A 502 ISG/JAC ETHICS REVIEW REQUIRED (JER DOD 5500.07-R)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401_IP, AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.			
18. AUTHOR'S PRINTED NAME, RANK, GRADE Jacqueline M Killian, Lt Col, O-5		19. AUTHOR'S SIGNATURE KILLIAN JACQUELINE M 1050091976	20. DATE March 03, 2017
21. APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE Brenda J. Morgan, Col, Director Nursing Research Division		22. APPROVING AUTHORITY'S SIGNATURE MORGAN BRENDA J. 1135106085	23. DATE March 03, 2017

<b>PROCESSING OF PROFESSIONAL MEDICAL RESEARCH/TECHNICAL PUBLICATIONS/PRESENTATIONS</b>		
<b>1st ENDORSEMENT (59 MDW/SGVU Use Only)</b>		
TO: Clinical Research Division 59 MDW/CRD Contact 292-7141 for email instructions.	24. DATE RECEIVED March 06, 2017	25. ASSIGNED PROCESSING REQUEST FILE NUMBER 17134
26. DATE REVIEWED March 10, 2017		27. DATE FORWARDED TO 502 ISG/JAC
28. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES If yes, give date. _____ <input type="checkbox"/> N/A		
29. COMMENTS <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED IRB approved research abstract. Approved		
30. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Kupferer/GS13/Human Research Subject Protection Expert	31. REVIEWER SIGNATURE KUPFERER KEVIN.R.1086667270 <small>Digitally signed by KUPFERER KEVIN.R.1086667270 DN: cn=KUPFERER KEVIN.R.1086667270, o=59 MDW/CRD, ou=USAF, email=KUPFERER.KEVIN.R.1086667270@usaf.af.mil Date: 2017.03.10 14:14:18 -0500</small>	
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42. PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Kevin Iinuma, SSgt/E-5, 59 MDW Public Affairs	43. REVIEWER SIGNATURE IINUMA KEVIN.MITSUGU.1296227 613 <small>Digitally signed by IINUMA KEVIN.MITSUGU.1296227613 DN: cn=IINUMA KEVIN.MITSUGU.1296227613, o=59 MDW/PA, ou=USAF, email=IINUMA.KEVIN.MITSUGU.1296227613@usaf.af.mil Date: 2017.03.15 08:58:35 -0500</small>	
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Jacqueline Killian, Lt Col, USAF, NC, PhD

A Pilot Study of a Novel Biobehavioral Intervention's Effect on Physiologic State, Perceived Stress and Affect: An Investigation of Laughter Yoga

### MHSRS 2017 Research Abstract Submission

**Background:** Military members and their families are suffering from the consequences of the stresses associated with the past 16 years of war.<sup>1-3</sup> McEwen's allostatic load model delineates how chronic stress up-regulates the sympathetic nervous system causing physiologic and psychological sequela. Conversely, yogic breathing has been shown to up-regulate the parasympathetic nervous system due to the diaphragmatic stimulation of the vagus. Fredrickson's Broaden and Build theory explains how positive emotions can facilitate development of factors associated with psychological resilience. These theoretical premises laid the foundation for the search for an innovative and cost effective means of mitigating the effects of stress and promoting psychological resilience; and provide the basis for this pilot investigation.

**Objective:** The study's purpose was to explore the practice of the evidence-based biobehavioral intervention, laughter yoga, as a means to lessen the physiologic and psychological effects of stress and promote psychological resilience for a military graduate student population.

**Methods:** A mixed method quasi-experimental pre-test post-test wait-listed group design was utilized for the study. *Setting:* A military graduate school campus in the US. *Participants:* 41 military medical and allied health graduate students age 23-52 ( $M=31$ ), randomly assigned to experimental and wait-listed control groups. The experimental group met for an hour laughter yoga session twice a week for first two weeks, while control continued with usual activities. Wait-listed control participated in laughter yoga during third and fourth weeks while experimental group then returned to regular academic and life behaviors. Measures were collected at baseline, after two weeks and then again after four weeks. Physiologic measures and self-report measures were also collected before and after each laughter yoga session. Outcome measures included: heart rate variability, peak expiratory flow rate, Perceived Stress Scale, Positive Affect Negative Affect Scale, Patient Health Questionnaire 8, Standard Form 36, and Connor-Davidson Resilience Scale scores, as well as participant responses to open-ended questions.

**Results:** Subjects showed statistically significant decreases in measures of heart rate variability and increases in peak expiratory flow rate, positive affect, resilience and general health and mental health scores when compared to baseline. Participants reported improvements in mood, relationships and health behaviors in responses to open-ended questions. These results suggest that laughter yoga may not only be beneficial as a group stress management technique that promotes factors associated with resilience, but that participation in the activity may also positively impact other aspects of the service member's life such as family/personal relations and overall health.

**Conclusions:** This pilot study provides preliminary evidence that laughter yoga may improve peak expiratory flow rate, psychological health and lead to unexpected benefits in personal, social and professional relationships. Further experimental studies are needed with larger sample size with true randomization, longer intervention period to obtain objective evidence-based results that will quantifiably demonstrate that laughter yoga participation can promote healthy behaviors, psychological resilience and reduce healthcare utilization and cost.

Jacqueline Killian, Lt Col, USAF, NC, PhD

A Pilot Study of a Novel Biobehavioral Intervention's Effect on Physiologic State, Perceived Stress and Affect: An Investigation of Laughter Yoga

**Key Words:** Laughter Yoga, Heart Rate Variability, Peak Expiratory Flow Rate, Perceived Stress, Positive Affect, Resilience

**Acknowledgments:** This research was funded by the Jonas Center for Nursing and Veterans Healthcare and the Uniformed Services University of the Health Sciences (USUHS). Support and resources were also provided by the Traumatic Injury Research Program (TIRP), Military & Emergency Medicine Department of USUHS. Dr. Penny Pierce, Dr. Catherine Ling, Dr. Paul Rapp, Dr. David Keyser, Dr. Dominic Nathan and Dr. Cara Olsen are acknowledged for their guidance, patience, support and encouragement throughout the research process, and Migdalia Hettler and Kylee Bashirelahi, critical members of the research team, for their assistance and professional reinforcement.

**DISCLAIMER:** The views expressed are those of the author and do not reflect the official policy or position of the Uniformed Services University of the Health Sciences, the Department of Defense, or the United States government. The voluntary, fully informed consent of the subjects used in this research was obtained as required by 32 CFR 219 and DODI 3216.02\_AFI 40-402.AMI N. POWLESLAND, SSgt, USAF

Jacqueline Killian, Lt Col, USAF, NC, PhD

A Pilot Study of a Novel Biobehavioral Intervention's Effect on Physiologic State, Perceived Stress and Affect: An Investigation of Laughter Yoga

### ***References***

1. Fisher H. U.S. military casualty statistics: Operation New Dawn, Operation Iraqi Freedom and Operation Enduring Freedom. 2013.
2. Hobfoll, S.E., Speilberger, C.D., Bresnitz, S., et al. War-related stress: Addressing the stress of war and other traumatic events. *Am. Psychol.* 1991; 46(8): 848-855.
3. Kintzle, S., Yarvis, J.S., Bride, B.E. Secondary traumatic stress in military primary and mental health care providers. *Mi. Med.* 2013; 178(12): 1310-1315.